IEI Technology Corp.

MODEL:

# IOVU-751R-CE5/UX-R10

## Panel PC with 7" Touch Screen and 500 MHz RMI Alchemy™ Au1250™ Media Processor, PoE, Ethernet, USB, RS-232, RS-232/422/485, RoHS Compliant, IP 64 Protection

# User Manual

RoHS Lead Free

Rev. 1.02 - 20 September, 2012

Windows CE 5.0 IOVU RMI Multi-Media Multi-Media solution MPEG-1/2/4 and WMV9

# Revision

| Date | Version | Changes |
|---|---|---|
| 20 September, 2012 | 1.02 | Changed product photos<br>Modified some specifications |
| 30 July, 2009 | 1.01 | Minor edit |
| 9 January, 2009 | 1.00 | Initial release |

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# Packing List

**NOTE:**

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the IOVU-751R-CE5/UX-R10 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the IOVU-751R-CE5/UX-R10 package.

- 1 x IOVU-751R-CE5/UX-R10
- 1 x Utility CD including SDK, utilities, and technical documentation
- 1 x Null modem cable
- 1 x Power cable
- 1 x Touch pen

Images of the above items are shown in **Chapter 3**.

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Chapter

1

# Introduction

## 1.1 Overview

**Figure 1-1: IOVU-751R-CE5/UX-R10**

The IOVU series industrial CE touch-screen open offers both the reliability of a traditional and the flexibility of a PC. With an open, the user is able to run their own or third party software. Furthermore, the IOVU series is designed for use as a thin client device in a remote terminal environment. The IOVU series is powered by an open Windows CE .NET 5.0 OS with rich application development support and connectivity to network and I/O devices.

The IOVU-751R-CE5/UX-R10 features a low power (less than 0.5 Watts) 500 MHz RMI Alchemy™ Au1250™ media processor with an integrated media acceleration engine (MAE) that supports MPEG 1, MPEG 2, MPEG 4, WMV 9 and DivX video file formats.

### 1.1.1 Benefits

Some of the IOVU-751R-CE5/UX-R10 benefits include:

- An Open design to provide both open architectures for hardware and software.
- Designed to fill the gap between traditional products and industrial PCs to offer traditional reliability and PC flexibility.

- Offers increased functionality and flexibility over traditional s at a lower cost than industrial PCs.
- Enables users to configure the product for a particular application by accessing the operating system and scaling it to meet their needs.
- Rugged, compact, operates over wide temperature variations, and low power consumption embedded hardware design without failure-prone hard disk and fan.
- Standard peripheral connectors including Ethernet port, serial ports, USB ports, Secure Digital memory, and touch input.
- Open architecture to run user or third party application software.
- Thin client device application in a remote terminal environment.
- The Ethernet port helps system administrators secure and separate network segments by field applications as well as communications to back-end legacy systems and central databases.
- Powered by popular open Windows CE. NET embedded hard real-time operating system provides rich Windows-based functions and application software development support.
- PoE (Power over Ethernet) capability reduces communications and power supply to a single CAT5e cable.
- Utilities and Remote Management Tools make it easy to manage the IOVU centrally and remotely.

### 1.1.2 Features

The IOVU-751R-CE5/UX-R10 features are listed below:

- Embedded low power (less than 0.5 Watts) 500 MHz RMI Alchemy™ Au1250™ media processor
- 2 MB Boot Flash
- On-board 256 MB DDR2
- 1 GB Secure Digital (SD) plug and play (PnP) storage
- Supports MPEG 1, MPEG 2, MPEG 4 and WMV 9 video file formats
- One high performance 10/100 Mb/s Ethernet connector
- One high performance 10/100 Mb/s Ethernet connector with PoE (Power over Ethernet) capability (complies with IEEE 802.3af PoE specifications)
- Two USB 2.0 ports

- One RS-232 serial communication connection
- One RS-232/422/485 serial communication connection
- Two 1.5 Watt speakers
- 7” color active matrix TFT display
- 4-wire resistive touch panel
- 6-30 VDC input
- Cool grey frame
- RoHS compliant

### 1.1.3 Technical Specifications

The IOVU-751R-CE5/UX-R10 technical specifications are listed in **Table 1-1**.

| SPECIFICATIONS | |
|---|---|
| **SYSTEM** | |
| **CPU** | 500 MHz RMI Alchemy™ Au1250™ media processor |
| **Memory** | 2MB boot flash<br>256 MB DDR2<br>1 GB Secure Digital® card (internal) |
| **Real-time Clock** | Battery backup RTC |
| **Watchdog Timer** | Software programmable supports 1~255 sec. system reset |
| **Reset** | Reset Button |
| **DISPLAY** | |
| **Display Type** | Color active matrix TFT |
| **Display Size** | 7” |
| **Resolution** | 800 x 480, 262K color graphics |
| **Video Support** | MPEG1, MPEG2, MPEG4, DivX, WMV9 |
| **Brightness** | 500 cd/$m^2$ |
| **Touch Panel** | 4-wired resistive touch panel |
| **I/O and COMMUNICATION** | |
| **Ethernet** | 2 x 10/100 Mbps |

| SPECIFICATIONS | |
|---|---|
| **Serial Ports** | 1 x RS-232<br>1 x RS-232/422/485 |
| **USB Interfaces** | 2 x USB 2.0 host connectors |
| **Audio** | 2 x 1.5 Watt speakers |
| **POWER** | |
| **Power Supply** | 6-30 VDC |
| **Power Consumption** | 8.5 W |
| **ENVIRONMENTAL and MECHANICAL** | |
| **Operating Temperature** | Minimum: -20ºC (-4°F)<br>Maximum: 60°C (140°F) |
| **Humidity** | 5%RH to 90%RH (non-condensing) |
| **Vibration** | Operating Random Vibration Mode<br>1.Axes: 3 axes (Vertical / Transverse / Longitudinal).<br>2.10-500 Hz, 60min/axis.<br>3.Equivalent to Z:2.18 Grms X:1.6 Grms Y:1.96 Grms |
| **Front Panel Color** | Black C |
| **Physical Dimensions** | 312.5 mm x 242.6 mm x 65.1 mm (width x length x depth) |
| **Ingress Protection** | IP 64 compliant front panel |

**Table 1-1: Technical Specifications**

## 1.2 Certifications

All IOVU-751R-CE5/UX-R10 series models comply with the following international standards:

- RoHS
- IP 64

For a more detailed description of these standards, please refer to **Appendix A**.

Chapter

2

# Detailed Specifications

## 2.1 Mechanical Overview

### 2.1.1 Front Panel

The IOVU-751R-CE5/UX-R10 front panel (**Figure 2-1**) comprises a 7” TFT WVGA 16-bit color touch screen LCD in an ABS+PC plastic frame.

**Figure 2-1: Front Panel**

### 2.1.2 Connector Panel

All external peripheral interface connectors are located on the bottom panel of the IOVU-751R-CE5/UX-R10 . The peripheral interface connectors are shown in **Figure 2-2**.

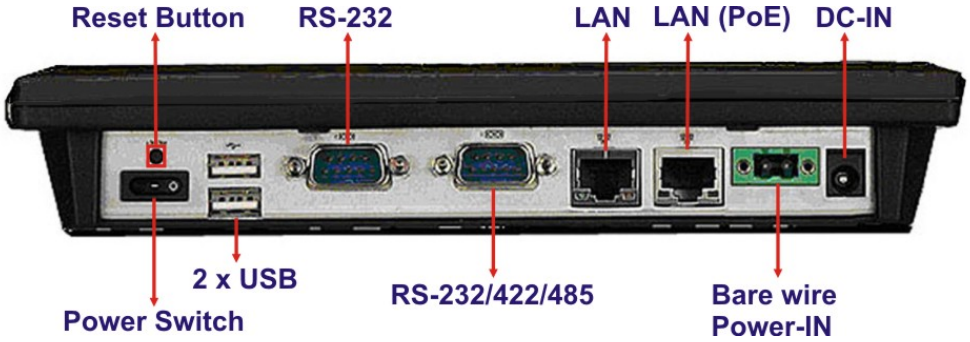



**Figure 2-2: IOVU-751R-CE5/UX-R10 Peripheral Connectors**

External peripheral interface connectors on the IOVU-751R-CE5/UX-R10 include:

- 1 x DC-IN power socket
- 1 x DC-IN bare wire terminal block
- 1 x Power switch
- 2 x RJ-45 LAN connectors (one supports PoE)
- 1 x RS-232 connector
- 1 x RS-232/422/485 connector
- 2 x USB connectors

### 2.1.3 Physical Dimensions

The physical dimensions of the IOVU-751R-CE5/UX-R10 are shown in **Figure 2-3** and listed below:

- **Front Panel**: 226mm (W) x140mm (H) x 15.68mm (D)
- **Cabinet**: 213.55mm (W) x 125.27mm (H) x 24mm (D)

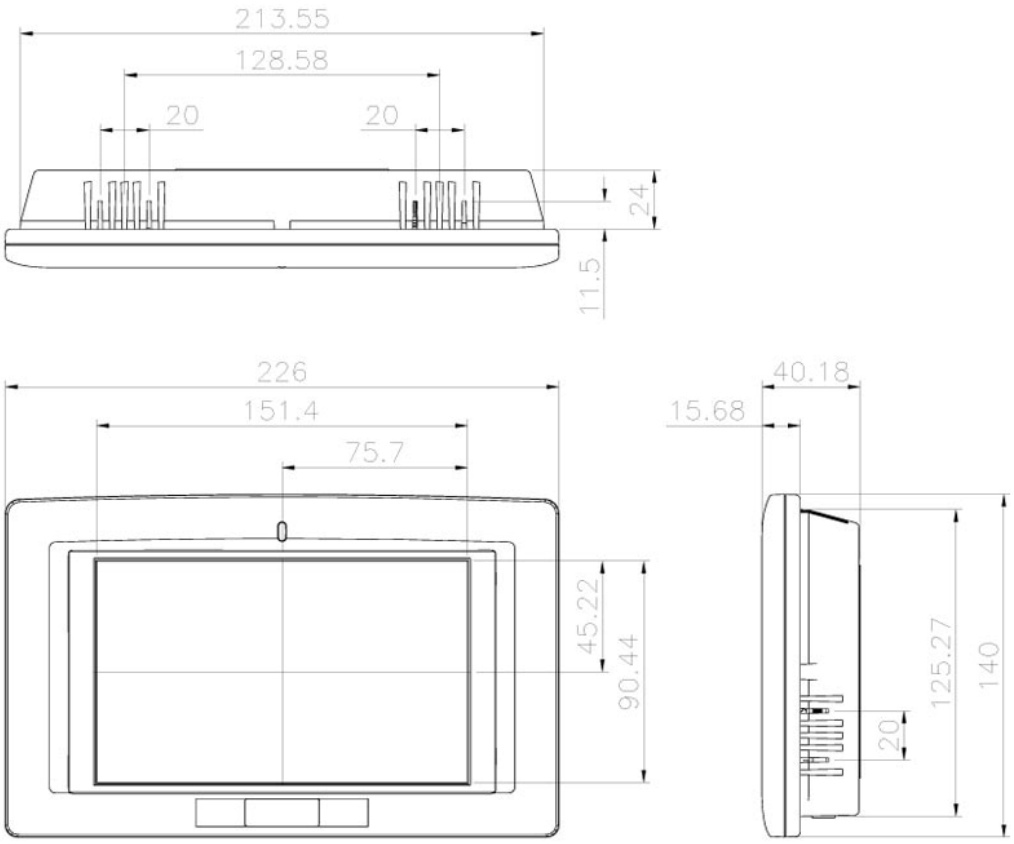



**Figure 2-3: IOVU-751R-CE5/UX-R10 Physical Dimensions (millimeters)**

## 2.2 Internal Overview

Internally the IOVU-751R-CE5/UX-R10 has a KAMIO-1252 embedded RISC (reduced instruction set computer) motherboard installed. An onboard Secure Digital card is also preinstalled onto the KAMIO-1252.

Some of the specifications for the KAMIO-1252 are listed below. For more detailed information, please refer to the KAMIO-1252 user manual.

### 2.2.1 KAMIO-1252 Overview Photo

The KAMIO-1252 has a wide variety of internal and external peripheral connectors. A labeled photo of the front side of the KAMIO-1252 is shown in **Figure 2-4**.

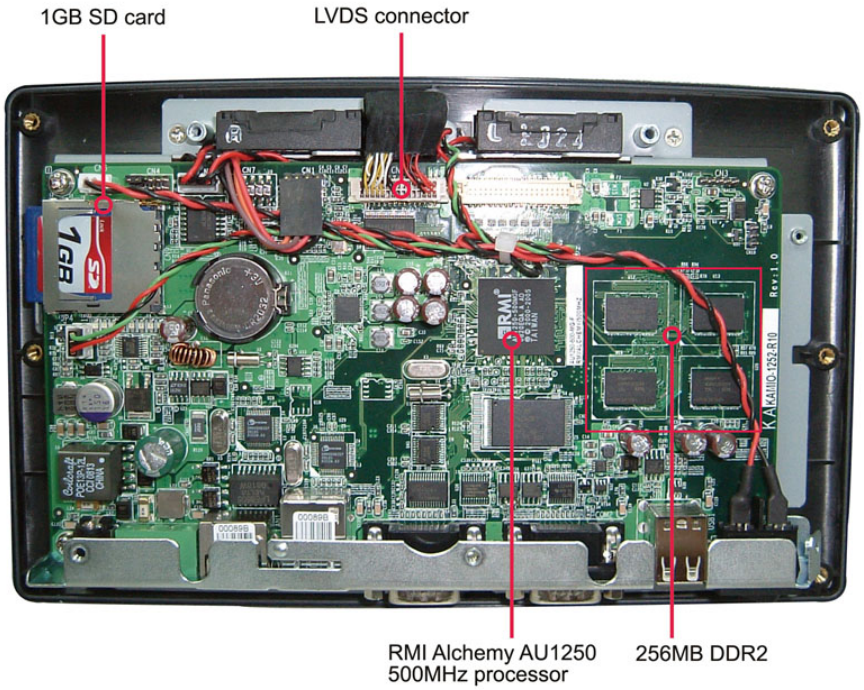



**Figure 2-4: KAMIO-1252 Overview [Front View]**

### 2.2.1.1 KAMIO-1252 Peripheral Connectors and Jumpers

The KAMIO-1252 has the following internal connectors and jumpers onboard:

- 1 x Audio connector
- 1 x Power LED connector
- 1 x Power switch connector
- 1 x PIC debug connector
- 1 x TTL LCD interface connector
- 1 x CPU JTAG connector
- 1 x LVDS LCD connector
- 1 x SD/SDIO/MMC connector
- 1 x Touch panel connector
- 1 x UIP debug connector
- 1 x Speaker-out connector

The KAMIO-1252 has the following external peripheral interface connectors on the bottom panel

- 1 x 10/100-BaseT Ethernet connector
- 1 x 10/100-BaseT Ethernet connector with PoE capability
- 1 x 12V DC-in power socket
- 1 x 6-30V DC-in bare wire terminal block
- 1 x RS-232 serial port connector
- 1 x RS-232/422/485 serial port connector
- 2 x USB port connectors

#### 2.2.1.2 KAMIO-1252 Technical Specifications

KAMIO-1252 technical specifications are listed below.

| Specification | Value |
|---|---|
| System | 500 MHz RMI Alchemy™ Au1250™<br>2 MB boot flash<br>256 MB DDR2<br>1 GB secure digital (SD) card for OS/Program storage<br>Battery backup RTC<br>Watchdog timer<br>Reset button<br>JTAG pin-header |
| Display | Dual LCD Interface supports 24-bit single channel LVDS and TTL LCD panel interface<br>24-bit color graphics resolutions up to 800 x 480 pixels<br>MPEG-1, MPEG-2, MPEG-4, WMV 9, and DivX support<br>4-wire touch resistive interface |
| I/O and Communications | 1 x 10/100 Mbps Ethernet port<br>1 x 10/100 Mbps Ethernet port with PoE capability<br>1 x RS-232 serial port<br>1 x RS-232/422/485 serial port (configured by software)<br>2 x USB 2.0 ports |
| Power | 6-30 VDC input<br>Less than 8.5 W power consumption |

| Specification | Value |
|---|---|
| Environmental | -20ºC – 60ºC<br>5% - 85% relative humidity (non-condensing)<br>IP64 compliant front panel |

**Table 2-1: Technical Specifications**

## 2.3 LCD Specifications

The IOVU-751R-CE5/UX-R10 has a 7” WVGA LCD screen. The LCD screen is attached to an aluminum frame that is IP 64 compliant. The specifications are shown below.

| | |
|---|---|
| Model | DATA IMAGE FG0700A2DSSWBG02 |
| Size | 7” |
| Resolution | 800 x 480 (WVGA) |
| Active Area (mm) | 152.4 x 91.44 |
| Pixel Pitch (mm) | 0.0635 x 0.1905 |
| LCD Color | Native 262K colors |
| View Angel (H/V) | 140/100 |
| Brightness (cd/m$^2$) | 500 |
| Contrast Ratio | 400:1 |
| Response Time (ms) | 5(Tr) / 15(Tf) |
| Supply Voltage (V) | 3.3 |
| Backlight | 1 CCFL |
| Backlight MTBF (hrs.) | 50000 |
| Dimensions (mm) | 165.0 x 104.0 x 5.5 |

**Table 2-2: IOVU-751R-CE5/UX-R10 LCD Specifications**

## 2.4 Touch Panel Specifications

The IOVU-751R-CE5/UX-R10 has a 4-wire touch screen installed. **Table 2-3** lists the touch panel specifications.

| | |
|---|---|
| Touch screen | EELY-ECW |
| Type | 4-wire |

| | |
|---|---|
| Touch screen | EELY-ECW |
| Resolution | Continuous |
| Transmission | > 80% |
| S/W driver | Windows CE 5.0 or Linux |
| Keypad | NO |

**Table 2-3: Touch Panel Specifications**

## 2.5 Multimedia Capabilities

The IOVU-751R-CE5/UX-R10 supports video decode at the following resolutions

- D1 (PAL, NTSC)
- VGA
- Wide VGA (16:9)
- QVGA
- GIF
- W GIF (16:9)

The IOVU-751R-CE5/UX-R10 supports the following video formats:

- MPEG-1
- MPEG-2
- WMV9
- DivX
- MPEG-4, MP4 and AVI

The IOVU-751R-CE5/UX-R10 supports the following audio formats:

- MPEG
- AAC
- WMA
- PCM
- AC-3
- OGG Vorbis

## 2.6 Power Supply

**WARNING:**

Whenever you need to remove a part for maintenance or upgrading, switch off the power supply and unplug the power cord first.

The IOVU-751R-CE5/UX-R10 has a 12 V DC power input and a 6-30 V DC bare-wire connector on the bottom panel. The IOVU-751R-CE5/UX-R10 also supports Power over Ethernet (PoE) through one of its LAN ports.

Chapter

3

# Unpacking

## 3.1 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during the installation of the IOVU-751R-CE5/UX-R10 may result in permanent damage to the IOVU-751R-CE5/UX-R10 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IOVU-751R-CE5/UX-R10. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IOVU-751R-CE5/UX-R10 or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the IOVU-751R-CE5/UX-R10, place it on an antic-static pad. This reduces the possibility of ESD damaging the IOVU-751R-CE5/UX-R10.

## 3.2 Unpacking

### 3.2.1 Unpacking Precautions

When the IOVU-751R-CE5/UX-R10 is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 3.1**.
- Make sure the packing box is facing upwards so the IOVU-751R-CE5/UX-R10 does not fall out of the box.
- Make sure all the components shown in **Section 3.3** are present.

## 3.3 Unpacking Checklist

**NOTE:**

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the IOVU-751R-CE5/UX-R10 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

### 3.3.1 Package Contents

The IOVU-751R-CE5/UX-R10 is shipped with the following components:

| Quantity | Item and Part Number | Image |
|---|---|---|
| 1 | IOVU-751R-CE5/UX-R10 | |
| 1 | Utility CD including SDK, utilities, and technical documentation | |
| 1 | Null modem cable | |
| 1 | Touch pen | |

**Table 3-1: Package List Contents**

## 3.4 Optional Items

| Part Number | Description | Image |
|---|---|---|
| ALFPK-08 | Panel mount kit | |
| AFLWK-07 | VESA 75 wall mount kit | |
| ARM-11-RS | LCD monitor/PPC arm kit, load capacity of 3kg~7kg | |
| STAND-A08-RS | LCD monitor/PPC stand kit for VESA 75, up to 5kg | |
| VSTAND-A07 | LCD monitor/PPC stand V type for VESA 75, 0~90 degree adjustable hinge and up to 2.5kg capacity | |
| AFLP-12BMSR-U | USB magnetic card reader | |
| AFLP-BRW01-U, AFLPBRB01-U | USB barcode reader (white/black) | |

| Part Number | Description | Image |
|---|---|---|
| FLP-CDB01, AFLP-CDW01 | VFD customer display (green) 5x7 dot matrix (black/white) | |
| 63000-FSP060DBAB1555-RS | 24V DC 45W power adapter with bare wire, 90-264V AC input | |
| IPS-2042TX | Industrial 6-port Lite-Managed P.O.E. Ethernet Switch with 6 x 10/100TX | |
| AUPS-A10-R10 | DC 12V input 60W UPS module with 3800mAH, 2S2P Li-Ion battery, VESA 75 | |

**Table 3-2: Optional Items**

Chapter

4

# Installation

## 4.1 Installation Precautions

When installing the IOVU-751R-CE5/UX-R10, please follow the precautions listed below:

- **Read the user manual**: The user manual provides a complete description of the IOVU-751R-CE5/UX-R10, installation instructions and configuration options.
- **DANGER! Disconnect Power**: Power to the IOVU-751R-CE5/UX-R10 must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the IOVU-751R-CE5/UX-R10 is opened while the power cord is still connected to an electrical outlet.
- **Qualified Personnel**: The IOVU-751R-CE5/UX-R10 must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- **Mounting**: It is advisable at least two people assist with mounting the IOVU-751R-CE5/UX-R10.
- **Air Circulation**: Make sure there is sufficient air circulation when installing the IOVU-751R-CE5/UX-R10. The IOVU-751R-CE5/UX-R10's cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the IOVU-751R-CE5/UX-R10. Leave at least 5 cm of clearance around the IOVU-751R-CE5/UX-R10 to prevent overheating.
- **Grounding**: The IOVU-751R-CE5/UX-R10 should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the IOVU-751R-CE5/UX-R10.

## 4.2 External Peripheral Interface Connectors

**Table 4-1** lists the external interface connectors on the IOVU-751R-CE5/UX-R10. Detailed descriptions of the connectors can be found following the table.

| Connector | Type |
|---|---|
| 6-30V DC power jack | DC Jack |
| 6-30V DC bare wire power terminal | Terminal Block |
| Ethernet connectors | RJ-45 Jack connector |
| Power switch | On/off switch |
| RS-232 | D-sub 9 Male connector |
| RS-232/422/485 Serial connector | D-sub 9 Male connector |
| USB connectors | Dual USB port |

**Table 4-1: External Interface Connectors**

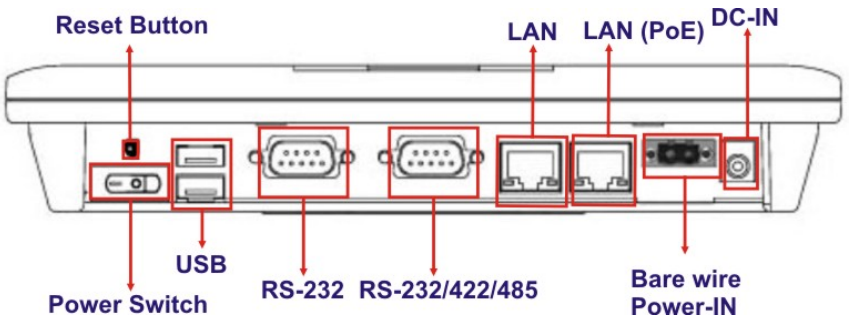



**Figure 4-1: IOVU-751R-CE5/UX-R10 Peripheral Connectors**

## 4.2.1 DC Power interfaces

### 4.2.1.1 6V~30V DC Terminal Block

The power terminal block connects to a 6V~30V DC power source.

**CN Label:** **CN12**

**CN Type:** Terminal block

**CN Location:** See **Figure 4-1**

**CN Pinouts:** See **Table 4-2** and **Figure 4-2**

| PIN | DESCRIPTION |
|---|---|
| 1 | 6~30V DC Power in |
| 2 | GND |

**Table 4-2: 9~36V Power Connector Pinouts**

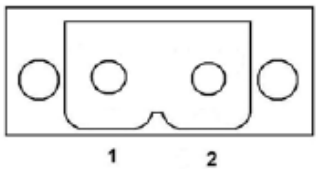



**Figure 4-2: Power Terminal Block**

#### 4.2.1.2 12V DC-In

Use the rear panel +6-30V DC jack to connect the monitor to a power source.

CN Label: **CN13**

CN Type: 6-30V DC Jack

CN Pinouts: See **Table 4-3**

CN Location: See **Figure 4-1**

| PIN | DESCRIPTION |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | +6-30V |

**Table 4-3: DC 6-30V Connector Pinouts**

### 4.2.2 Serial Interfaces

The system has both a RS-232 and a RS-232/422/485 serial port connector.

#### 4.2.2.1 RS-232 Serial Interface Pinouts

Pinouts for the RS-232 serial port are shown below.

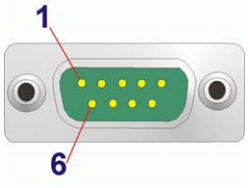
| Pin Arrangement | Pin No | Signal Name | Direction | Description |
|---|---|---|---|---|
|  | 1 | DCD | Input | Carrier Detect |
| | 2 | RX | Input | Receive Data |
| | 3 | TX | Output | Send Data |
| | 4 | DTR | Output | Data Terminal Ready |
| | 5 | GND | N/A | Ground |
| | 6 | DSR | Input | Data Set Ready |
| | 7 | RTS | Output | Request to Send |
| | 8 | CTS | Input | Send Possible |
| | 9 | RI | Input | Called Status Display |
| | Shell | FG | N/A | Frame Ground (Common with SG) |

**Table 4-4: RS-232 Pinouts**

### 4.2.2.2 RS-232/422/485 Serial Interface Pinouts

Pinouts for the RS-232/422/485 serial port are shown below.

| Pin | RS-232 | RS-422 | RS-485 |
|---|---|---|---|
| 1 | | RX- | DATA- |
| 2 | RX | RX+ | DATA+ |
| 3 | TX | TX- | |
| 4 | | | |
| 5 | GND | GND | GND |
| 6 | | | |
| 7 | | TX+ | |
| 8 | | | |
| 9 | | | |

**Table 4-5: Serial Port Pinouts**

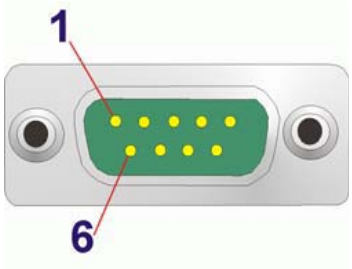



**Figure 4–3: Serial Port Pinouts**

To select RS-232, RS-422, or RS-485 mode, please follow the directions below.

**Step 1:** Select "**Start > Programs > IEI > IEI CEUTILITY.exe**" to run IEI_CEUTILITY.exe in the "SYSTEM" folder on the SD/CF card).

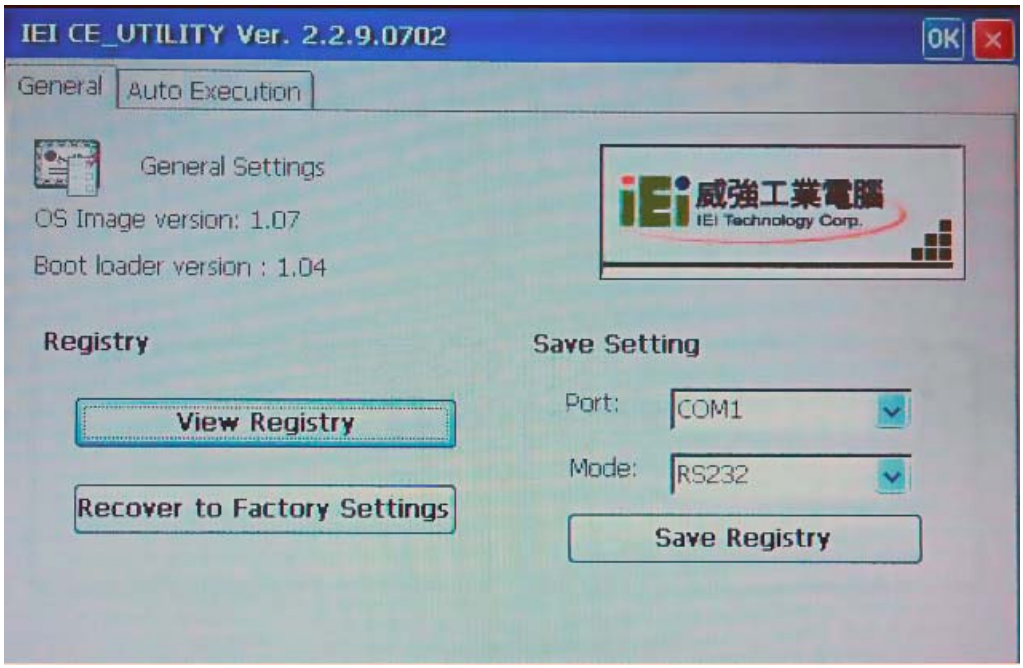



**Figure 4-4: Serial Port Mode Setting**

**Step 2:** **Change serial port mode setting**. Change the value in **Figure 4-4** to the desired mode setting.

**Step 3:** **Click "Set"**

**Step 4:** **Click "Save Registry"** to save the changes.

#### 4.2.2.3 Connecting the Serial Port

The IOVU-751R-CE5/UX-R10 has two female DB-9 connectors on the external peripheral interface panel for a serial device. Follow the steps below to connect a serial device to the IOVU-751R-CE5/UX-R10.

**Step 1:** **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See **Figure 4-5**.

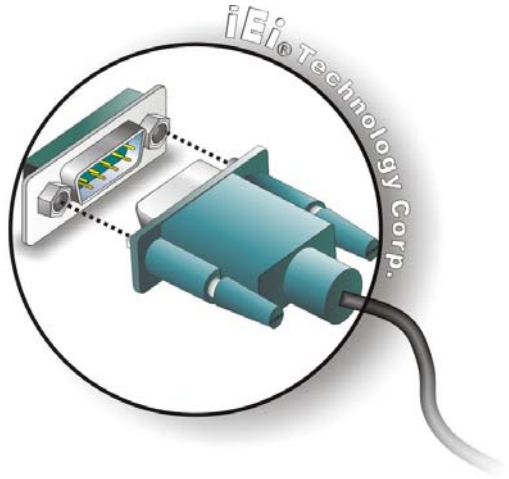


**Figure 4-5: Serial Device Connector**

**Step 2:** **Secure the connector**. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

### 4.2.3 USB Connectors

#### 4.2.3.1 USB Pinouts

USB devices connect directly to the USB connectors on the external peripheral connector panel.

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 1 | VCC | 5 | VCC |
| 2 | D1- | 6 | D2- |

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 3 | D1+ | 7 | D2+ |
| 4 | GND | 8 | GND |

**Table 4-6: USB Connector Pinouts**

### 4.2.3.2 USB Connection (Dual Connector)

The external USB Series "A" receptacle connectors provide easier and quicker access to external USB devices. Follow the steps below to connect USB devices to the IOVU-751R-CE5/UX-R10.

**Step 1:** **Insert a USB Series "A" plug**. Insert the USB Series "A" plug of a device into the USB Series "A" receptacle on the external peripheral interface. See **Figure 4-6**.

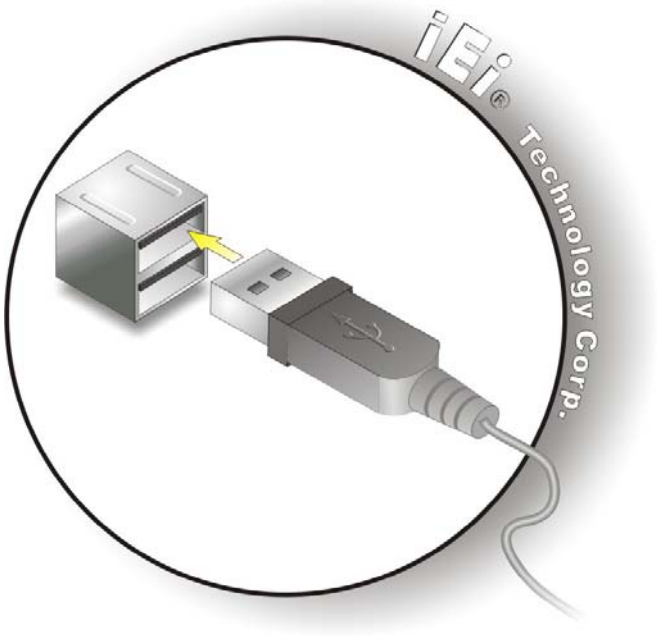



**Figure 4-6: USB Connector**

### 4.2.4 Ethernet Connector

A 10/100Mb/s connection can be made between the Ethernet connectors and a Local Area Network (LAN) through a network hub.

### 4.2.4.1 Ethernet Connector Pinouts

The Ethernet connector pinouts are shown below.

| PIN | DESCRIPTION |
|---|---|
| 1 | TPT+ |
| 2 | TPT- |
| 3 | TPR+ |
| 4 | LAN_GND |
| 5 | LAN_GND |
| 6 | TPR- |
| 7 | LAN_GND |
| 8 | LAN_GND |

**Table 4-7: Ethernet Connector Pinouts**

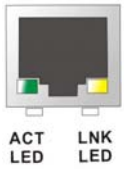



**Figure 4-7: Ethernet Connector**

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked (**Table 4-8**).

| SPEED LED | | LINK LED | |
|---|---|---|---|
| **Status** | **Description** | **Status** | **Description** |
| GREEN | ON: 100MB<br>OFF: 10MB | YELLOW | ON: Linked<br>Flashing: Activity |

**Table 4-8: Ethernet Connector LEDs**

#### 4.2.4.2 LAN Connection

There are two external RJ-45 LAN connectors. The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

**Step 1:** **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the IOVU-751R-CE5/UX-R10. See **Figure 4-8**.

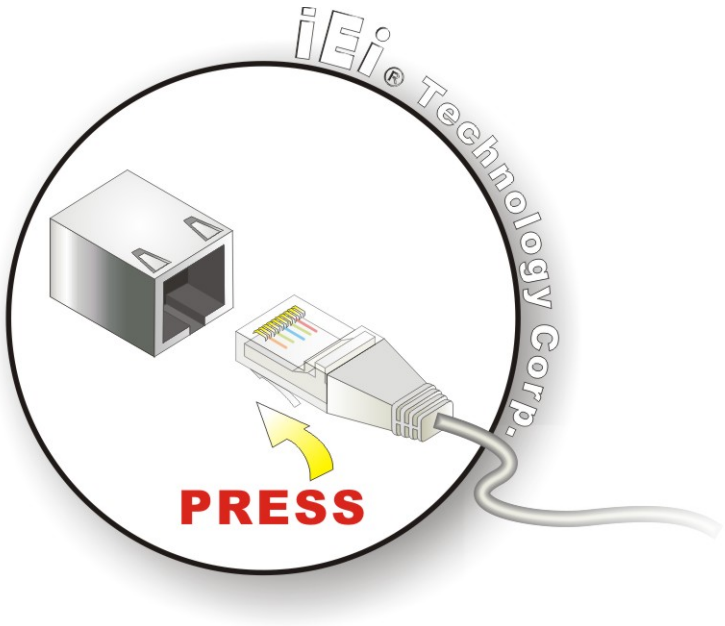



**Figure 4-8: LAN Connection**

**Step 2:** **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector.

## 4.3 Mounting the System

**WARNING!**

When mounting the flat panel PC onto an arm, onto the wall or onto a panel, it is better to have more than one person to help with the installation to make sure the panel PC does not fall down and get damaged.

Three methods of mounting the IOVU-751R-CE5/UX-R10 are listed below.

- Wall mounting
- Panel mounting
- Arm mounting

The three mounting methods are described below.

### 4.3.1 Wall Mounting

To mount the IOVU-751R onto the wall, please follow the steps below.

**Step 1:** Select the location on the wall for the wall-mounting bracket.

**Step 2:** Carefully mark the locations of the four screw holes in the bracket on the wall.

**Step 3:** Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

**Step 4:** Align the wall-mounting bracket screw holes with the pilot holes.

**Step 5:** Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 4-9**).

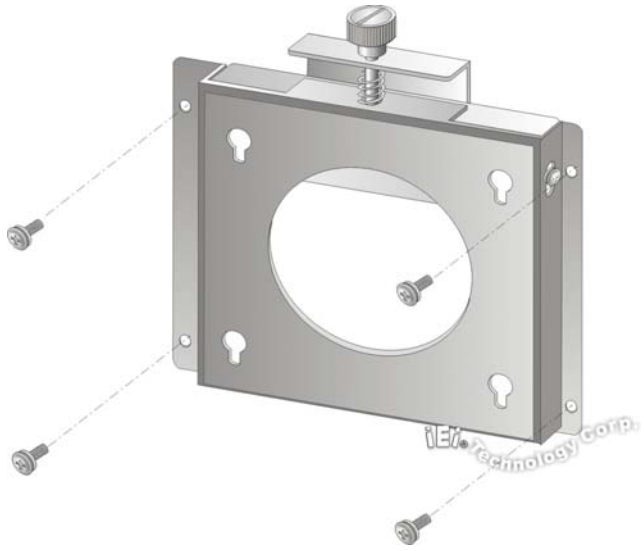


**Figure 4-9: Wall-mounting Bracket**

**Step 6:** Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the real panel of the IOVU-751R and tighten until the screw shank is secured against the rear panel (**Figure 4-10**).

**Step 7:** Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

**Step 8:** Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 4-10**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

**NOTE:**

In the diagram below the bracket is already installed on the wall.

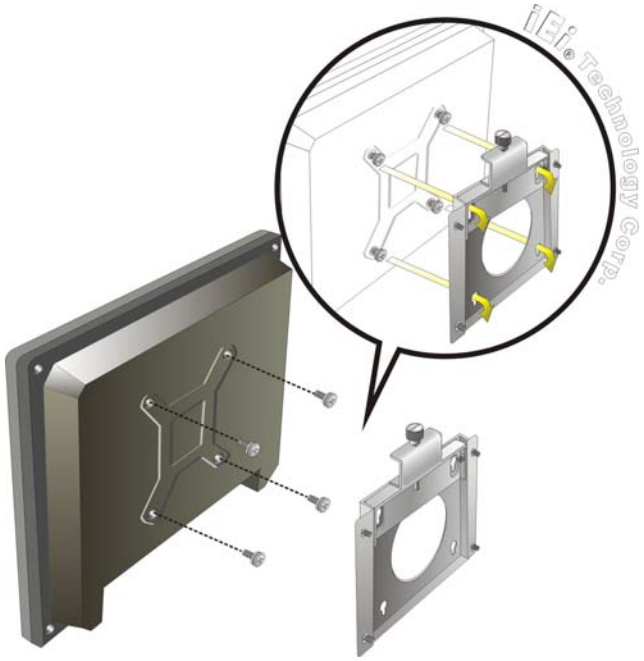


**Figure 4-10: Chassis Support Screws**

**Step 9:** Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (**Figure 4-11**).

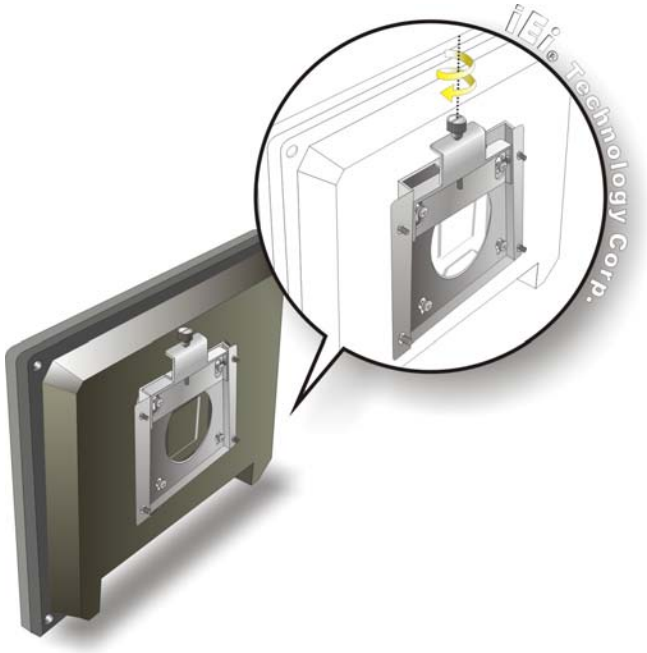


**Figure 4-11: Secure the IOVU-751R**

### 4.3.2 Panel Mounting

The IOVU-751R-CE5/UX-R10 can be mounted in a panel.

**CAUTION:**

When mounting the IOVU-751R-CE5/UX-R10 take care to tighten the retention screws or bolts until fully secure, but do not over tighten. Over tightening the retention screws or bolts may cause them to become stripped, rendering them useless.

To mount the IOVU-751R-CE5/UX-R10 into a panel, please follow the steps below.

**Step 1:** Select the position on the panel to mount the IOVU-751R-CE5/UX-R10.

**Step 2:** Cut out a section from the panel that corresponds to the rear panel dimensions of the IOVU-751R-CE5/UX-R10. Take care that the panel section that is cut out is smaller than the overall size of the frame that surrounds the IOVU-751R but just large enough for the rear panel of the IOVU-751R to fit through (see **Figure 4-12**).

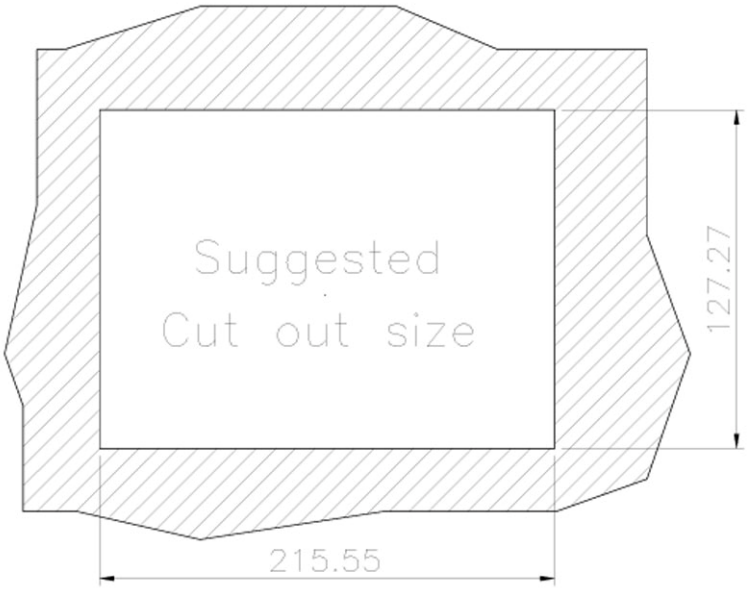



**Figure 4-12: IOVU-751R-CE5/UX-R10 Panel Opening (mm)**

**Step 3:** Slide theIOVU-751R-CE5/UX-R10 through the hole until the frame is flush against the panel.

**Step 4:** Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the frame.

**Figure 4-13: Panel Mounting Clamps**

**Step 5:** Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 4-14**).

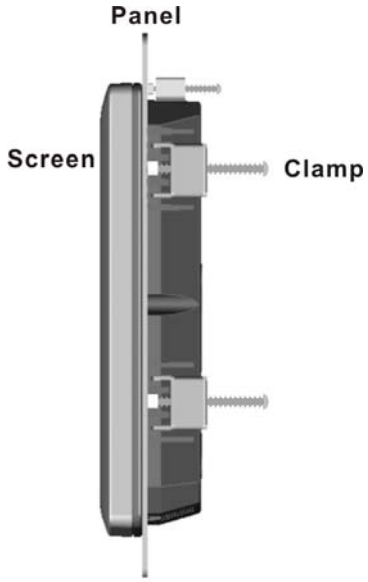



**Figure 4-14: Tighten the Panel Mounting Clamp Screws**

### 4.3.3 Arm Mounting

The IOVU-751R-CE5/UX-R10 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 75 mm interface pad. To mount the IOVU-751R-CE5/UX-R10 on an arm, please follow the steps below.

**Step 1:** The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

**NOTE:**

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 75 mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the IOVU-751R-CE5/UX-R10.

**Step 2:** Once the mounting arm has been firmly attached to the surface, lift the IOVU-751R onto the interface pad of the mounting arm.

**Step 3:** Align the retention screw holes on the mounting arm interface with those on theIOVU-751R, as shown in **Figure 4-15**.

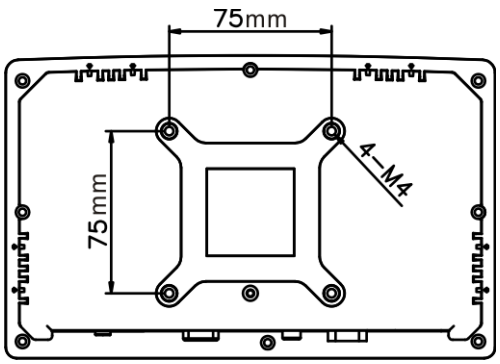



**Figure 4-15: Arm Mounting Retention Screw Holes**

**Step 4:** Secure the IOVU-751R to the interface pad by inserting four retention screws through the bottom of the mounting arm interface pad and into the IOVU-751R.

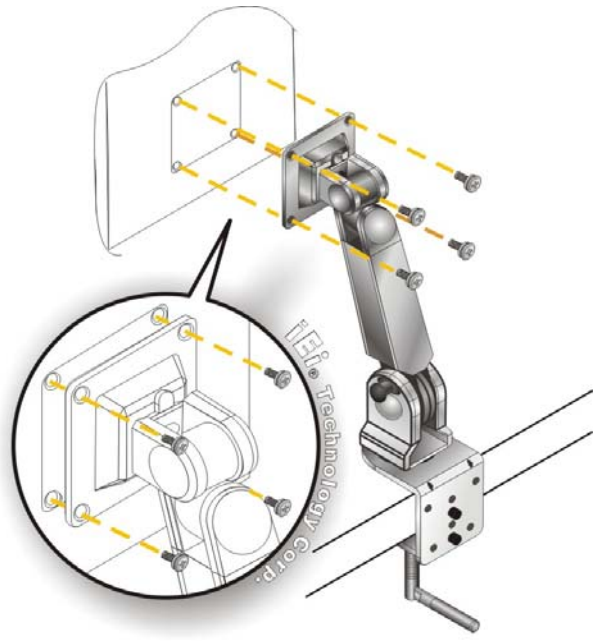


**Figure 4-16: Arm Mounting (ARM-11-RS)**

### 4.3.4 Stand Mounting

The IOVU-751R has Video Electronics Standards Association (VESA) standard mounting holes tapped into the rear panel. The monitor stand mounting plate has a matching VESA hole pattern. To mount the IOVU onto a stand, please follow the steps below.

**Step 1:** Line up the threaded holes on the monitor rear panel with the screw holes on the monitor stand mounting plate.

**Step 2:** Secure the monitor to the stand with the supplied retention screws (**Figure 4-17**).

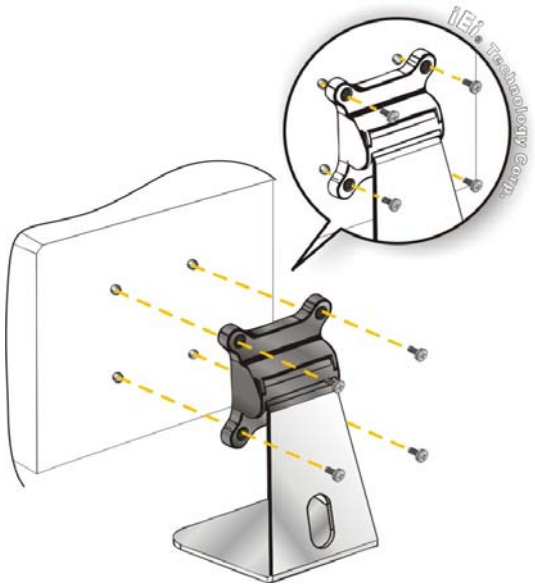


**Figure 4-17: Stand Mounting**

## 4.4 Software

The IOVU-751R-CE5/UX-R10 comes with a pre-installed Windows CE 5.0 or Linux 2.6.x operating system and a rich software application development kit. For information about configuring the operating system, adding remote management tools or additional software and drivers, refer to the user manuals on IEI IOVU Utility CD that came with the IOVU-751R-CE5/UX-R10. The IOVU includes the following software:

IOVU-751R-CE5/-R10:

- Standard Windows® CE5.0 professional version license.
- Optional Board Support Package (BSP) for customers to customize their own OS image.
- Attached Software Development Kit (SDK) for embedded Visual C++ to program Windows CE application.
- Built-in .NET Compact Framework support with related SDK
- Thin Client Technology, Microsoft RDP (Remote Desktop Protocol), to enable IOVU-751R to access Microsoft Windows® based applications installed on Microsoft Terminal Service server.
- Free pre-installed utilities for configuring and diagnosing your IOVU-751R.
- Free remote management tools installed in laptop for remotely configuring, monitoring, and managing your IOVU-751R.

IOVU-751R-UX/-R10:

- GNU standard Embedded Linux 2.6.x bootloader and OS image
- Secure Shell (OpenSSH) providing 128-bit, 192-bit or 256-bit encryption between the IOVU-751R and another system
- Built-in web browser and X-window system
- Related Linux drivers for onboard peripheral I/O, network and audio
- Attached SDK including GUI, Sample Code, and Tool chain make users program application readily.
- Optional Board Support Package (BSP) including kernel source code for customers to customize their own OS image.

Appendix

A

# Certifications

## A.1 RoHS Compliant

All models in the IOVU series comply with the Restriction of Hazardous Materials (RoHS) Directive. This means that all components used to build the industrial workstations and the workstation itself are RoHS compliant.

The RoHS Directive bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

## A.2 IP 64 Compliant Front Panel

The front panels on all models in the IOVU series have an ingress protection rating (IP) of 64, IP 64 or greater. The front panels are protected from dust particles and splashed water.

Appendix

B

# Safety Precautions

## B.1 Safety Precautions

**WARNING:**

The precautions outlined in this appendix should be strictly followed. Failure to follow these precautions may result in permanent damage to the IOVU-751R-CE5/UX-R10.

Please follow the safety precautions outlined in the sections that follow:

### B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Make sure the power is turned off and the power cord is disconnected*** whenever the IOVU-751R-CE5/UX-R10 is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the IOVU-751R-CE5/UX-R10 chassis is opened when the IOVU-751R-CE5/UX-R10 is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the IOVU-751R-CE5/UX-R10.
- ***If considerable amounts of dust, water, or fluids enter the IOVU-751R-CE5/UX-R10***, turn off the power supply immediately, unplug the power cord, and contact the IOVU-751R-CE5/UX-R10 vendor.
- **DO NOT**:
  - Drop the IOVU-751R-CE5/UX-R10 against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

### B.1.2 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during the installation of the IOVU-751R-CE5/UX-R10 may result in permanent damage to the IOVU-751R-CE5/UX-R10 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IOVU-751R-CE5/UX-R10. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IOVU-751R-CE5/UX-R10 is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

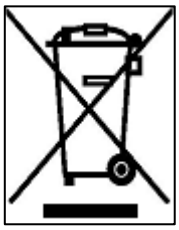
### B.1.3 Product Disposal

**WARNING:**

Risk of explosion if battery is replaced by and incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

## B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the IOVU-751R-CE5/UX-R10, please follow the guidelines below.

### B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the IOVU-751R-CE5/UX-R10, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the IOVU-751R-CE5/UX-R10 does not require cleaning. Keep fluids away from the IOVU-751R-CE5/UX-R10 interior.
- Be cautious of all small removable components when vacuuming the IOVU-751R-CE5/UX-R10.
- Turn the IOVU-751R-CE5/UX-R10 off before cleaning the IOVU-751R-CE5/UX-R10.
- Never drop any objects or liquids through the openings of the IOVU-751R-CE5/UX-R10.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the IOVU-751R-CE5/UX-R10.
- Avoid eating, drinking and smoking within vicinity of the IOVU-751R-CE5/UX-R10.

### B.2.2 Cleaning Tools

Some components in the IOVU-751R-CE5/UX-R10 may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the IOVU-751R-CE5/UX-R10.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the IOVU-751R-CE5/UX-R10.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the IOVU-751R-CE5/UX-R10.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the IOVU-751R-CE5/UX-R10 as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the IOVU-751R-CE5/UX-R10. Dust and dirt can restrict the airflow in the IOVU-751R-CE5/UX-R10 and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.

- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

# Hazardous Materials Disclosure

## C.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

| Part Name | Toxic or Hazardous Substances and Elements | | | | | |
|---|---|---|---|---|---|---|
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (CR(VI)) | Polybrominated Biphenyls (PBB) | Polybrominated Diphenyl Ethers (PBDE) |
| Housing | X | O | O | O | O | X |
| Display | X | O | O | O | O | X |
| Printed Circuit Board | X | O | O | O | O | X |
| Metal Fasteners | X | O | O | O | O | O |
| Cable Assembly | X | O | O | O | O | X |
| Fan Assembly | X | O | O | O | O | X |
| Power Supply Assemblies | X | O | O | O | O | X |
| Battery | O | O | O | O | O | O |

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (CR(VI)) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 壳体 | X | O | O | O | O | X |
| 显示 | X | O | O | O | O | X |
| 印刷电路板 | X | O | O | O | O | X |
| 金属螺帽 | X | O | O | O | O | O |
| 电缆组装 | X | O | O | O | O | X |
| 风扇组装 | X | O | O | O | O | X |
| 电力供应组装 | X | O | O | O | O | X |
| 电池 | O | O | O | O | O | O |

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。